



PRODUCT LEAFLET

TECHNICAL SPECS

APPLICATION NOTE

S-PRI – the modular, compact high speed camera for industrial and research applications. More light sensitive than ever.

Applications

The S-PRI is particularly suited for all applications where a compact and portable yet robust camera is essential:

- Industrial applications such as the installation and setting up of machinery and assembly lines as well as the subsequent trouble-shooting.
- Research applications in mechanical, electrical and process engineering, material stress testing, medical research, sports analysis, etc.

Why the S-PRI?

- Perfectly balanced performance – 1,250 fps @ 800 x 600 provides you with excellent image quality and a frame rate to capture most industrial processes
- Robust design – designed for many years of industrial handling and harsh environments (extruded aluminum housing with heavy duty connectors)
- Simple to use – the camera control software is easy to use, even for novices and occasional users; operator training is not necessary – yet provides full control of the camera settings and functions
- Autonomous operation – the built-in battery allows you to use the camera without external power cables and power supplies. Ideal for troubleshooting appliances on the factory floor

Unique features

High Sensitivity – the S-PRI offers a light sensitivity greater than in previous cameras models. In many applications and settings, the camera delivers well-lit images without extra illumination, while in others only minimal extra light is necessary.

High light sensitivity also allows for crisper images as motion Blur, associated with fast moving objects can be substantially reduced by a shorter shutter time, and depth of field can be extended by stopping down the lens – both parameters are essential to create better, more informative images

Modular concept – you don't have to buy an off-the-shelf product which might or might not suit your application. Have your S-PRI configured for a perfect match by choosing from an extensive range of options and extensions

Selectable ROI – the customer can select the most suitable image format (ROI, region of interest) almost without limitations, for best camera performance and image quality



Versions

S-PRI cameras are available in the following versions:

- **S-PRI:** 1,250 fps @ 800 x 600 pixels, mono or color
- **S-PRI + options:** basic S-PRI plus a range of options to extend the cameras performance to i.e. 1280 x 1024 pixel resolution, 4,200 fps frame rate
- **S-PRI F1:** pre-configured model with the most popular feature set at a special price (640 x 480 @ 1000fps)
- **S-PRI F2:** pre-configured model with the most popular feature set at a special price (1280 x 1024 @ 500fps)

Accessories

Every S-PRI comes complete with an 'accessory kit', which includes:

- AOS Imaging Studio Light software
- Power supply and cable
- Data cable (5 m)

Users have to supply:

- Control PC (see 'technical specs' for minimal PC specifications)
- Lens (c-mount, 1" image size)

Accessories like lenses, lights, tripods, cases etc. can be purchased from AOS

Options and extensions

The S-PRI is a modular camera in which performance and functions can be extended with a range of software-based 'options', i.e. full resolution, higher frame rates, multi-camera operations etc.

'Options' can be purchased together with a new camera, or at any time later as an 'upgrade'. The upgrade file will be sent electronically and can be installed easily by the operator within minutes. No need to return the camera to the manufacturer.

In addition to the 'options', several hardware based 'extensions' are also available, i.e.

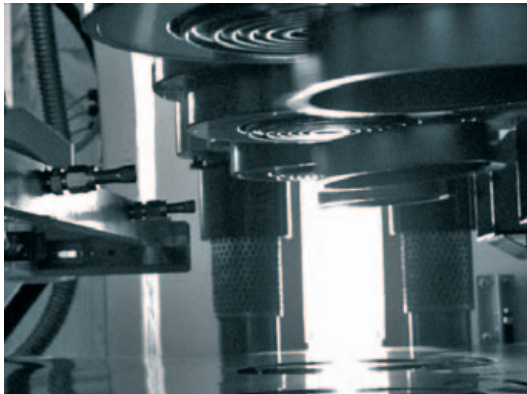
- CF interface
- Video output.

These extensions have to be purchased together with the camera.

Technical key specifications

Sensor (type, resolution)	CMOS APS Sensor, 800 x 600 pixels 1280 x 1024 pixels (with option 2)
Sensor size	11.20 x 8.4 mm, 14 µm pixel size
Light sensitivity	ISO 3200 (monochrome), ISO 1600 (color)
Frame rate at full resolution	1,250 fps (500 fps @ 1280 x 1024)
Max. frame rate	1,250 fps (4,200 fps with option 3)
Capacity Image memory	1.3 GB (standard), 2.6, 5.2, 10.4 GB (optional)
Built-in battery, capacity	NiMH, 30 minutes
Data Interface	Gigabit Ethernet (1'000 Mb/s)
Size, weight	72 x 72 x 122 mm, 900 gr

Complete technical specifications of our products are available as a separate document ('technical specs') from your AOS partner, or as a download from our webpage www.aostechnologies.com/downloads



Mechanical engineering on an eccentric press



Industrial troubleshooting on a bottling line

Your local AOS partner:

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Specifications are subject to change without prior notice – v07.2010



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Technical specifications

Product type	Digital high speed camera
Image Sensor	CMOS APS Sensor
Image Sensor	Monochrome or color (with Bayer pattern)
Pixel size	14 µm
Dynamic range	5-, 8- or 10 bit (user selectable with option 1)
Gain control	Low-, mid- and high gain (user selectable with option 1)
Dynamic range	5-, 8- or 10 bit (optional, user selectable)
Sensitivity	ISO 3200 (monochrome), ISO 1600 (color)
Image Resolution	800 x 600 pixels (1280 x 1024 pixels with option 2)
Image size	800 x 600: 11.2 x 8.4 mm (= approx. 1" image format) 1280 x 1024: 18.2 x 14.5 mm (exceeding 1" format)
Frame rate	1,250 fps @ 800 x 600 pixels
Max. frame rate	1,250 fps (4'200 fps with option 3)
ROI	800 x 600 or 400 x 300 (200 x 150, option 3) Free selectable (option 2)
Shutter type	Global electronic shutter
Shutter exposure times	4 µsec to 1/frame rate

Image memory	Built-in, DRAM
Standard capacity	1.3 GB
Optional	2.6, 5.2, 10.4 GB
Memory upgrade	Possible, factory upgrade
Sequence length	2.8 secs @ 800 x 600/1000 fps (1.3 GB image memory) 5.6 secs @ 800 x 600/1000 fps (2.6 GB image memory) 11.1 secs @ 800 x 600/1000 fps (5.2 GB image memory) 22.2 secs @ 800 x 600/1000 fps (10.4 GB image memory) Sequence length can be extended by reducing the image resolution resp. frame rate

Data Interface	Gigabit Ethernet
Video Interface	Optional, see below
Memory Interface	Optional, see below
Event Markers	1 (TTL, input) 3 additional Event Markers (option 4)

Power supply	12 VDC (9...16 VDC)
Power consumption	20 W
Battery	Built-in, rechargeable NiMH battery allowing 30 minutes camera operation

Options

Options are software-based upgrades to extend the cameras performance and functionality. They can be purchased together with a new camera, or at any time later. Options for existing cameras will be sent electronically and can be installed by the operator within minutes.

Option 1	Gain control
Option 2	Full resolution (1280 x 1024 pixels) User selectable ROI
Option 3 PRI	Extended speed (4'200 fps)
Option 4	3 additional Event Markers (total of 4)
Option 5	Frame synchronization (sync in / sync out) Multi camera operation
Option 6	AOS Imaging Studio FULL version, incl. – Image tab (image control functions) – auto download – image cropping
Option 11	Auto Exposure
Option 12	Motion Detection

Extensions

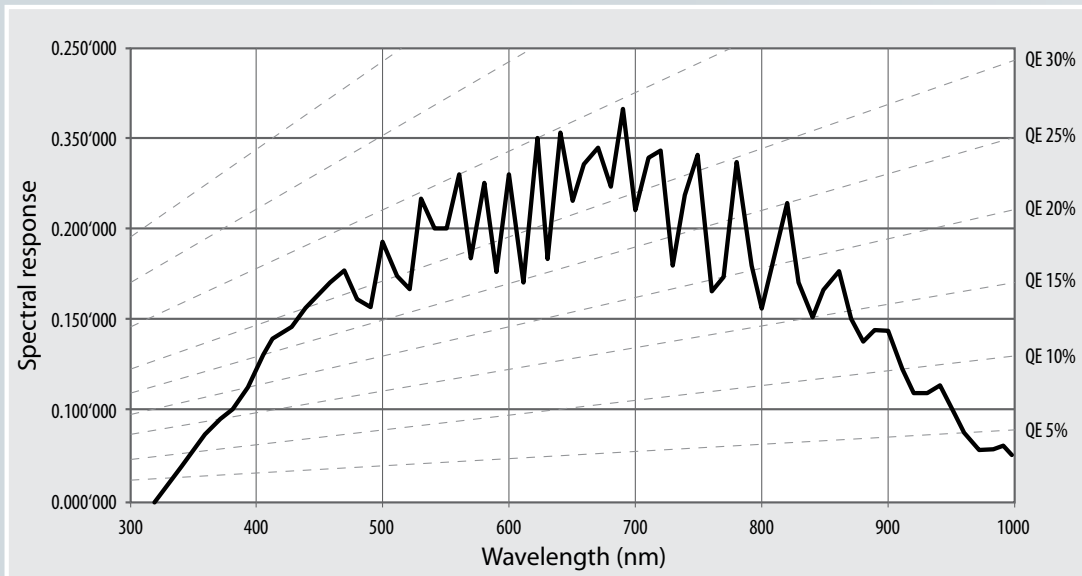
Extensions are additional hardware components, to be ordered with the camera.

Video Interface	Video out (digital SDI, or analog PAL/NTSC)
CF Interface	For CF memory cards (Silicone Drive)
IRIG B Interface	IRIG B time stamping (requires external IRIG-B122, amplitude modulated signal)
24 V Interface	Voltage range (24 – 36 V DC)

Certifications

CE	In compliance with relevant standards
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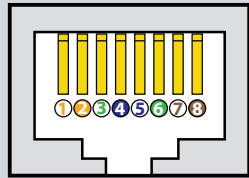
Spectral response



Connectors

Data Connector

- 1 BI_DA+
- 2 BI_DA-
- 3 BI_DB+
- 4 BI_DC+
- 5 BI_DC-
- 6 BI_DB-
- 7 BI_DD+
- 8 BI_DD-



Connector type:

RJ45

I/O Connector

- 1 GND (-)
- 2 V In (In)
- 3 Remote On (In)
- 4 Sync In (In) *
- 5 Sync Out (Out) *
- 6 Set-to-Rec (In)
- 7 Trigger (In)
- 8 Strobe (Out)
- 9 Armed (Out)
- 10 Triggered (Out)
- 11 Event Marker 1
- 12 Event Marker 2 *
- 13 Event Marker 3 *
- 14 Event Marker 4 *



* optional

Connector type:

LEMO Type: FGG.2B.314.CLAD82Z
ODU Type: S22LOC-P14MFG0-8200

Environmental conditions

Shock resistance	Robust design, but not designed/built to withstand severe shocks
Operating temperature	0 ... +45 °C (32 ... 113 °F)
Storage temperature	-40 ... +70 °C (-40 ... 158 °F)
Operating humidity	max. 80 %, non condensing, at 45 °C (113 °F) for 8 hours
Storage humidity	max. 40 %, non condensing, at 70 °C (158 °F) for 48 hours

Control PC – minimum requirements

CPU	Pentium Dual Core, 2 GHz
DRAM	2 GB
HDD	60 GB
Interfaces	GigE
OS	MS Windows 2000, XP PRO, VISTA, Windows7

The control PC for an AOS high speed camera has to meet or exceed these minimum requirements for a reliable, convenient camera performance. PC's with lower specifications may result in a camera performance below the indicated ones.

Resolution vs. frame rate

The S-PRI offers frame rates up to 1'250fps. It can be extended with 'option 3' to 3'000 resp. 4'200fps.

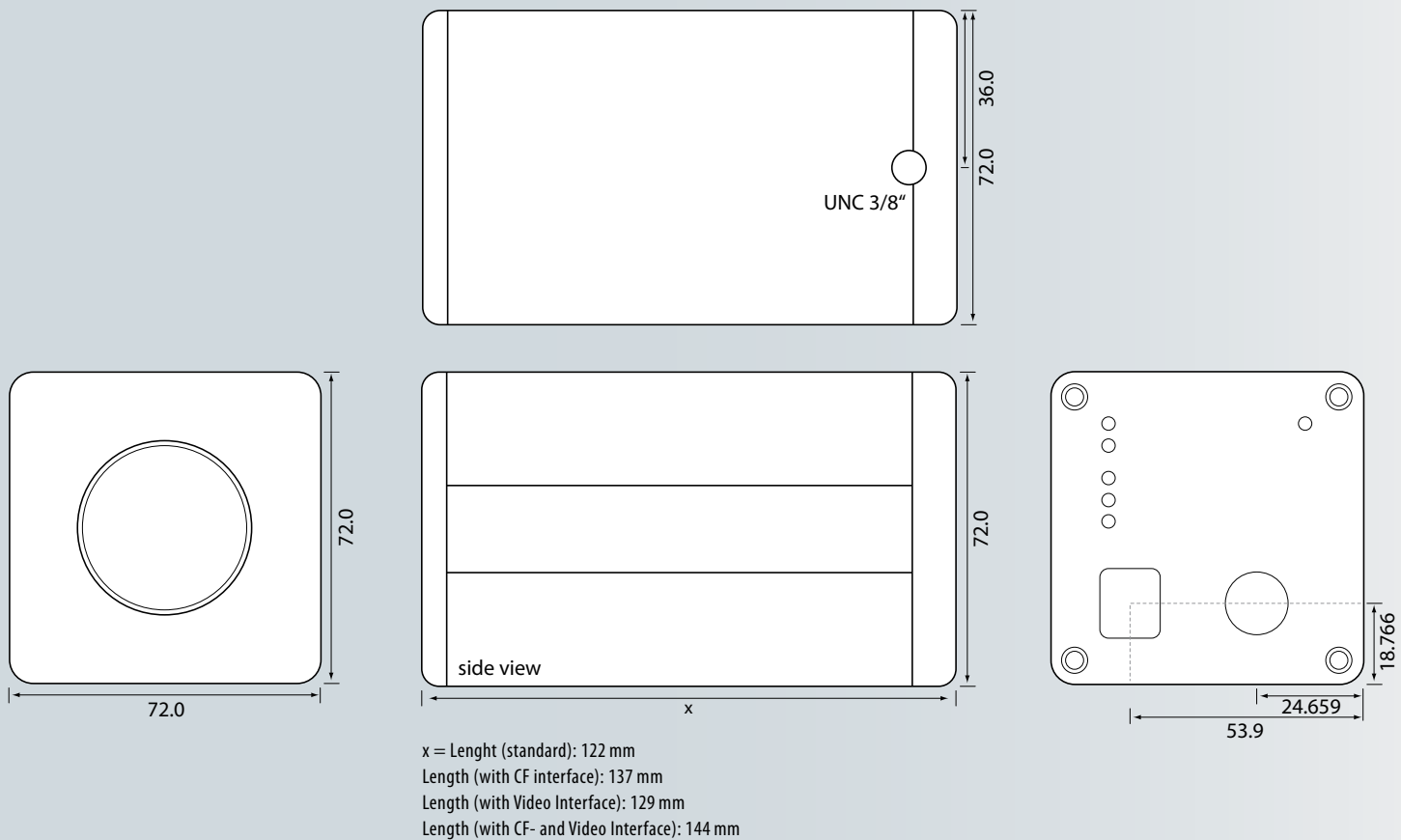
'Option 2' offers a full image resolution of up to 1280 x 1024 pixels plus a free selection of the 'Region of Interest' within the given frame rates.

Image resolution	Frame rate (fps)
800 x 600	1'250
400 x 300	3'000 (with option 3)
200 x 150	4'200 (with option 3)

Dimensions / weight / mechanics

Dimension (w/o options)	72 x 72 x 122 mm (w/o lens and extensions)
Weight	900 gr (w/o lens and extensions)
Lens mount	c-mount, adjustable backfocus 1" lens format covers image format at 800 x 600 Full format of 1280 x 1024 (option 2) requires lenses with an image size larger than 1" (i.e. F-mount lenses with adapter)
Camera mount	Standard 3/8" thread with 1/4" brass insert

Dimension / Mounting



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Your local AOS Partner:

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